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*Date of Signature*

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No. : 10/662,218  
Applicant(s) : Juergen Pensel and Ulrich Sander  
Filed : September 12, 2003  
Title : Ophthalmic Surgical Microscope With A Subject Illumination System  
TC/A.U. : 2873  
Examiner : Jessica t. Stultz  
Docket No. : 33997.0089

**APPEAL BRIEF**

Mail Stop Appeal Brief - Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This Appeal Brief follows a "Notice of Appeal" filed June 28, 2007, and is accompanied by a Fee Transmittal (electronic) and Deposit Account payment in the amount of \$500 as payment of the fee required under 37 CFR 41.20(b)(2).

The Director is hereby authorized to charge any additional fees which may be required, or credit any overpayment, to Deposit Account Number 08-2442.

## I. REAL PARTY IN INTEREST

The real party in interest is Leica Microsystems (Schweiz) AG, assignee of the present application. An assignment document from the inventors to Leica Microsystems (Schweiz) AG is recorded in the USPTO at Reel 014501 / Frame 0801.

## II. RELATED APPEALS AND INTERFERENCES

There are no other related appeals or interferences.

## III. STATUS OF CLAIMS

The application as filed included claims 1-14; claims 15 and 16 were added after original filing.

Claims 2-16 are rejected and are being appealed.

Claim 1 is canceled.

## IV. STATUS OF AMENDMENTS

An amendment was filed March 29, 2007 in response to a Final Office Action mailed January 30, 2007, and was entered as indicated by an Advisory Action mailed April 9, 2007. There are no amendments that have not been entered.

## V. SUMMARY OF CLAIMED SUBJECT MATTER

Claim 2 is the only independent claim on appeal. Claim 2 is directed to an ophthalmic surgical microscope, generally designated by reference numeral (1) in the specification and drawing.

The microscope of Claim 2 comprises at least one observation beam path (2) for intersecting with a patient's eye (5) being viewed through the microscope (1), as described at paragraph [0025] (page 5, lines 18-25) and shown in Fig. 1.

The claimed microscope further comprises "an apparatus for illumination of the patient's eye with illuminating light, wherein the apparatus includes means for selecting the spectral band and polarization of the illuminating light such that the illuminating light is reflected, absorbed, or scattered differently in different media of the patient's eye or at interfaces

of different media of the patient's eye.” The apparatus for illumination includes at least a light source (7) which generates illuminating light as disclosed at paragraph [0026] (page 5, line 26 - page 6, lines 26-28) of the specification and shown in Fig. 1. The “means for selecting the spectral band and polarization of the illuminating light” is a means-plus-function limitation under 35 U.S.C. §112, ¶6. Corresponding structure described in the specification includes a light source (7) emitting illuminating light characterized by a specified spectral band and polarization, as described at paragraph [0013] (page 3, lines 15-17) and specifically claimed in Claim 7. Corresponding structure described in the specification also includes color and/or polarization filters which may be selectably introduced into illuminating beam path (8) to modify the light from source (7), an example of which is filter (18) shown in Fig. 1. See paragraph [0013] (page 3, lines 14-15); paragraph [0023] (page 5, lines 8-9); paragraph [0026] (page 5, line 27); and paragraph [0030] (page 6, lines 28-29); see also Claim 8.

Claim 2 also requires “a display for generating an optical display image in response to a driver signal received by the display.” Such display may be a projector, a monitor, or another display. See paragraph [0016] (page 4, line 3). In the embodiment of Fig. 1, the display is a projector (16) driven by driver signals (15), as described at paragraph [0027] (page 6, lines 6-9).

Claim 2 next requires “a first deflection element arranged in the observation beam path for diverting illuminating light reflected from the patient's eye out of the observation beam path.” In the embodiment of Fig. 1, the first deflection element is identified by reference numeral (10). The first deflection element is described at paragraph [0026] (page 5, line 29 - page 6, line 1. The first deflection element may be a semitransparent deflection element, for example a mirror or prism. A known optical beam splitter may be used. See paragraph [0015] (page 3, lines 26-28).

A further structural limitation of Claim 2 is “a sensor arranged to receive light diverted by the first deflection element, the sensor generating a sensor signal representative of the light received thereby.” The claimed sensor corresponds to sensor (12) depicted in Fig. 1 and described at paragraph [0026] (page 6, lines 2-4). See also paragraph [0015] (page 3, lines 28-31).

The next limitation of Claim 2 is “an evaluation unit connected to the sensor and to the display, the evaluation unit receiving and processing the sensor signal to provide a driver signal for the display, whereby the display generates an optical display image of the patient’s eye.” Such an evaluation unit is designated by reference numeral (14) in Fig. 1 and may be a computer as described at paragraph [0027] (page 6, lines 5-7). See also paragraph [0016] (page 4, lines 1-5).

Finally, Claim 2 requires “a second deflection element arranged in the observation beam path for reflecting the display image of the patient’s eye into the observation beam path.” The specification and Fig. 1 describe and show a second deflection element (9) in observation beam path (2) that is arranged to reflect the image from display (16) into observation beam path (2). The second deflection element is described at paragraph [0027] (page 6, lines 7-9). The second deflection element may be a known deflection element suitable to overlay (superimpose) the display image with the image of the eye directly visible through microscope (1). See paragraphs [0016] and [0017] (page 4, lines 5-13).

With the claimed invention, the image that is reflected into the microscope observation beam path is one that was acquired by the same microscope, but may be electronically modified. In this regard, please see paragraphs [0018] through [0021] (page 4, lines 14-29).

## VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

There are three grounds of rejection to be reviewed on appeal:

- 1) Claims 7-9 and 13 are rejected under 35 USC 103(a) as being unpatentable over US 5424789 (Volk);
- 2) Claims 2-6 and 14-16 are rejected under 35 USC 103(a) as being unpatentable over Volk in view of US 6359031 (Lashkeri et al.); and
- 3) Claims 10-12 are rejected under 35 USC 103(a) as being unpatentable over Volk in view of Lashkeri et al., and further in view of US 2001/0010592 (Nakamura).

## VII. ARGUMENT

1. *Rejection of claims 7-9 and 13 under 35 U.S.C. § 103(a) as being unpatentable over Volk*

With respect to the stated rejection, claims 7-9 and 13 stand or fall together.

The present rejection should be withdrawn because claims 7-9 and 13 were amended to depend from claim 2 rather than claim 1, and claim 1 has been canceled. The rejection of claim 2 is addressed below. The arguments made below for patentability of claim 2 are applicable to dependent claims 7-9 and 13, which will stand or fall with claim 2.

Withdrawal of the rejection is respectfully sought.

2. *Rejection of claims 2-6 and 14-16 under 35 U.S.C. § 103(a) as being unpatentable over Volk in view of Lashkeri et al.*

With respect to the stated rejection, claims 2-6 and 14-16 stand or fall together. As mentioned above, claims 7-9 and 13 also stand or fall with claims 2-6 and 14-16.

Claim 2 requires “a display for generating *an optical display image* in response to a driver signal received by the display” and “a second deflection element arranged in the observation beam path for reflecting *the display image* of the patient’s eye into the observation beam path.” Thus, the claimed second deflection element reflects the same display image generated by the display.

The Final Office Action states that Lashkeri et al. teaches an ophthalmic stereomicroscope comprising a display generating an optical display image in response to a driver signal, “wherein the displays 285 and 285’ generate an image to the observer 280 and 280’...”. However, displays 285 and 285’ of Lashkeri et al. are located in the observation paths (see Lashkeri et al. at Figs. 2, 3, and 10), and thus there is no “second deflection element” as claimed that is arranged in the observation beam path to reflect the display image into the observation beam path. The Office Action identifies mirrors 255 and 255’ of Lashkeri et al. as meeting the “second deflection element” limitation of claim 2, but the mirrors 255 and 255’ are prior to the displays 285 and 285’ in the observation beam paths and never receive the display images generated by displays 285 and 285’.

In reply to the position taken by Examiner in the Advisory Actions mailed April 9, 2007 and May 7, 2007, applicants reiterate that it is the image of the eye generated by the display, and not simply any fundus image, which the “second deflection element” is arranged to reflect in accordance with claim 2.

Claim 2 also requires “a first deflection element arranged in the observation beam path for diverting illuminating light reflected from the patient's eye *out of the observation beam path*” (emphasis added). The Final Office Action identifies reflective surfaces 235 and 235' of mirror assembly 230 in Lashkeri et al. as meeting the “first deflection element” limitation. Applicants respectfully disagree because surfaces 235 and 235' simply serve to redirect the observation beam paths leading to observer 280, 280'. In other words, the light remains in optical paths 260, 260'.

For these reasons, the limitations of claim 2 are not met by the combination of Volk with Lashkeri et al. Favorable reconsideration of claim 2, and claims 3-9 and 13-16 depending therefrom, is respectfully requested.

3. *Rejection of claims 10-12 under 35 U.S.C. § 103(a) as being unpatentable over Volk in view of Lashkeri et al. in further view of Nakamura*

A. *Claim 10*

With respect to the stated rejection, claim 10 stands or falls on its own.

The arguments presented above with respect to parent claim 2 are relied on for dependent claim 10 as well. The deficiencies of Lashkeri et al. as a secondary reference, discussed above, are not cured by Nakamura.

Applicant respectfully requests that the rejection of claim 10 be withdrawn.

B. *Claims 11-12*

With respect to the stated rejection, claims 11-12 stand or fall together.

The arguments set forth above regarding parent claim 2 are reiterated here for dependent claims 11-12.

Further, with specific regard to claims 11 and 12, it is noted that a shutter located between the display (element 285 of Lashkeri et al.) and the “second deflection

element” (element 255) of Lashkeri et al. cannot be operable to selectively block the display image of the patient’s eye as claimed because the display 285 faces away from element 255 in Lashkeri et al.

Therefore, reversal of the rejection is courteously requested.

## VIII. CLAIMS APPENDIX

2. An ophthalmic surgical microscope comprising:
  - at least one observation beam path for intersecting with a patient's eye being viewed through the microscope;
  - an apparatus for illumination of the patient's eye with illuminating light, wherein the apparatus includes means for selecting the spectral band and polarization of the illuminating light such that the illuminating light is reflected, absorbed, or scattered differently in different media of the patient's eye or at interfaces of different media of the patient's eye;
  - a display for generating an optical display image in response to a driver signal received by the display;
  - a first deflection element arranged in the observation beam path for diverting illuminating light reflected from the patient's eye out of the observation beam path;
  - a sensor arranged to receive light diverted by the first deflection element, the sensor generating a sensor signal representative of the light received thereby;
  - an evaluation unit connected to the sensor and to the display, the evaluation unit receiving and processing the sensor signal to provide a driver signal for the display, whereby the display generates an optical display image of the patient's eye; and
  - a second deflection element arranged in the observation beam path for reflecting the display image of the patient's eye into the observation beam path.
3. The ophthalmic surgical microscope as defined in Claim 2, wherein the ophthalmic surgical microscope is a stereomicroscope having a pair of observation beam paths, two of the first deflection element are provided and allocated one to each of the pair of observation beam paths, and two of the second deflection element are provided and allocated one to each of the pair of observation beam paths.
4. The ophthalmic surgical microscope as defined Claim 2, wherein the display generates a true-color image.



5. The ophthalmic surgical microscope as defined Claim 2, wherein the display generates a false-color image.
6. The ophthalmic surgical microscope as defined Claim 2, wherein the display generates a black-and-white image.
7. The ophthalmic surgical microscope as defined in Claim 2, wherein the apparatus for illumination of the patient's eye includes at least one light source emitting illuminating light characterized by a specified spectral band and polarization.
8. The ophthalmic surgical microscope as defined in Claim 2, wherein the apparatus for illumination of the patient's eye includes a light source and at least one non-spatial filter selectably insertable after the light source for selecting the spectral band and polarization of the illuminating light.
9. The ophthalmic surgical microscope as defined in Claim 2, wherein the apparatus for illumination of the patient's eye includes a light source selected from the group consisting of: coherent light source, incoherent light source, laser, diode, and lamp.
10. The ophthalmic surgical microscope as defined in Claim 2, further comprising a shutter in the observation beam path, the shutter being operable to selectively block direct observation light from the patient's eye.
11. The ophthalmic surgical microscope as defined in Claim 2, further comprising a shutter between the display and the second deflection element, the shutter being operable to selectively block the display image of the patient's eye.
12. The ophthalmic surgical microscope as defined in Claim 10, further comprising an additional shutter between the display and the second deflection element, the additional shutter being operable to selectively block the display image of the patient's eye.

13. The ophthalmic surgical microscope as defined in Claim 2, further comprising a filter selectably insertable into the observation beam path for visualization of the different media of the patient's eye.
14. The ophthalmic surgical microscope as defined in Claim 13, wherein the ophthalmic surgical microscope is a stereomicroscope having a pair of observation beam paths, and two filters are provided and allocated one to each of the pair of observation beam paths for visualization of the different media of the patient's eye.
15. The ophthalmic surgical microscope as defined in Claim 2, wherein the means for selecting the spectral band and polarization of the illuminating light also functions to select the phase of the illuminating light.
16. The ophthalmic surgical microscope as defined in Claim 8, wherein the at least one non-spatial filter also functions to select the phase of the illuminating light.

IX. EVIDENCE APPENDIX

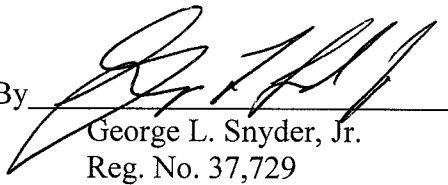
There is no appended evidence.

X. RELATED PROCEEDINGS APPENDIX

There are no other related proceedings.

Respectfully submitted,

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GLS/

Enclosures: Electronic Fee Transmittal

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